

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
20 January 2005 (20.01.2005)

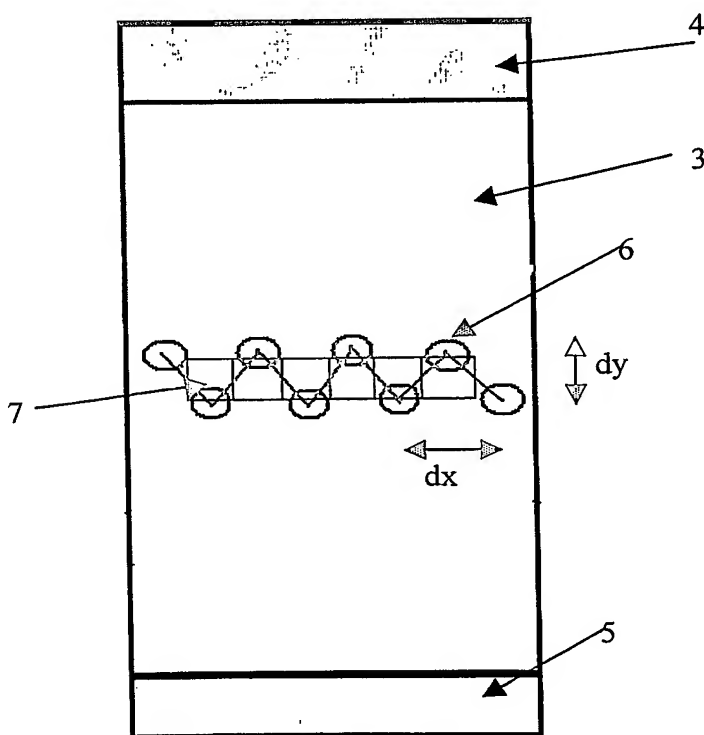
PCT

(16) International Publication Number
WO 2005/006023 A1

- (51) International Patent Classification⁷: **G01V 3/20, 3/38**
- (21) International Application Number:
PCT/EP2004/007486
- (22) International Filing Date: 7 July 2004 (07.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0316165.0 10 July 2003 (10.07.2003) GB
- (71) Applicant (for FR only): **SERVICES PETROLIERS SCHLUMBERGER** [FR/FR]; 42, rue Saint-Dominique, F-75007 Paris (FR).
- (71) Applicant (for AT, AU, AZ, CO, DE, DK, HR, ID, IE, IT, KP, KR, KZ, MX, NO, NZ, PH, PL, RO, RU, SK, ZA only): **SCHLUMBERGER TECHNOLOGY B.V.** [NL/NL]; Parkstraat 83-89, NL-2514 JG The Hague (NL).
- (71) Applicant (for all designated States except US): **SCHLUMBERGER HOLDINGS LIMITED**; P.O. Box 71, Craigmuir Chambers, Road Town, Tortola (VG).
- (71) Applicant (for CA only): **SCHLUMBERGER CANADA LIMITED** [CA/CA]; 525-3rd Avenue S.W., Calgary, Alberta, CA T2P 0G4 (CA).
- (71) Applicant (for CN only): **SCHLUMBERGER OVERSEAS S.A.** [PA/PA]; 8 Calle Aquilino de la Guardia, Panama City (PA).
- (71) Applicant (for AE, OM, SD, SY, TR only): **SCHLUMBERGER OILFIELD ASSISTANCE LIMITED**; Craigmuir Chambers, Road Town- Tortola (VG).
- (71) Applicant (for BR only): **SCHLUMBERGER SURENCO S.A.** [PA/PA]; 8 Calle Aquilino de la Guardia, Panama City (PA).
- (71) Applicant (for TT only): **SCHLUMBERGER SERVICES LIMITED**; P.O. Box 438, Tortola (VG).
- (71) Applicant (for EG only): **SCHLUMBERGER SEACO INC.** [PA/PA]; 8 Calle Aquilino de la Guardia, Panama City (PA).
- (71) Applicant (for CG, CM, CZ, DZ, EC, GA, GQ, IN, LT, MA, NA, NE, PG, TD, TN, VN only): **PETROLEUM**

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR IMAGING EARTH FORMATION



(57) Abstract: The invention concerns an apparatus for investigating the wall of a borehole filled with non-conductive mud, said apparatus comprising: a pad having an inside face and an outside face for pressing against the wall of the borehole; a set of measurement electrodes mounted on the outside face of the pad, potentials differences being measured between said measurement electrodes in order to provide measured points representative of the resistivity of the formation; both a source electrode and a return electrode adapted to inject current into the formation, the set of measurement electrodes being situated between the source electrode and the return electrode.

WO 2005/006023 A1



RESEARCH AND DEVELOPMENT NV [NL/NL]; De Ruyterkade 62, Willemstad, Curacao (AN).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): CHEUNG, Phillip [GB/FR]; Etudes et Productions Schlumberger, 1, rue Henri Becquerel, F-92142 Clamart Cedex (FR). HAYMAN, Andrew [GB/FR]; Etudes et Productions Schlumberger, 1, rue Henri Becquerel, F-92142 Clamart Cedex (FR). PITTMAN, Dennis [GB/FR]; Etudes et Productions Schlumberger, 1, rue Henri Becquerel, F-92142 Clamart Cedex (FR).

(74) Agent: ETUDES & PRODUCTIONS SCHLUMBERGER; 1, rue Henri Becquerel - BP 202, 92142 Clamart Cedex (FR).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,

KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.